IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of:	§
Jeffrey Tarvin	§ Group Art Unit: 3676
	§
Serial No.: 10/711,918	§
	§ Examiner: DiTrani, Angela M.
Filed: October 13, 2004	§
	§
For: System and Method to Interpret Distributed	§ Atty Docket: 101.0166
Temperature Sensor Data and to Determine a Flow	
Rate in a Well	

Assistant Commissioner
 for Patents
Washington, D.C. 20231
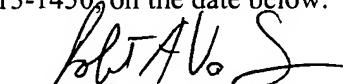
Sir:

REPLY TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

In response to the October 10, 2008 Notification of Non-Compliant Appeal Brief, replacement Pages 2-4 of the Appeal Brief are submitted herewith. The replacement pages have a revised Summary of the Claimed Subject Matter section. The section has been amended to reference both page and line numbers of the specification and reference numerals from the figures in accordance with the comments provided in the October 10, 2008 Notification of Non-Compliant Appeal Brief. If any issues remain, the undersigned can be contacted at telephone number 281-373-4369.

Respectfully submitted,

Date: October 20, 2008
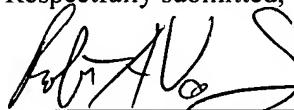
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Corporation, the Assignee of the above-referenced application, will be directly affected by the Board's decision in the pending appeal.

3.   **STATUS OF CLAIMS**

Claims 12-13, 32-33, 42, 49-94 have been canceled without prejudice, and claims 1-11, 14-31, 34-41, 43-48 stand finally rejected by the Examiner as noted in the Office Action dated March 6, 2008. The rejection of claims 1-11, 14-31, 34-41 and 43-48 is appealed.

4.   **STATUS OF AMENDMENTS**

The November 27, 2008 Amendment (received December 3, 2007) was submitted prior to the Examiner's Final Rejection mailed March 6, 2008 and was entered by the Examiner. A response was filed on May 5, 2008 after final, but no amendments were submitted and no amendments were entered after the Final Rejection.

5.   **SUMMARY OF THE CLAIMED SUBJECT MATTER**

a.)   Independent Claim 1

Independent claim 1 is directed to a methodology for analyzing distributed temperature data from a well. *(See paragraph 9, page 7, lines 1-15)*. The methodology uses a distributed temperature sensor system (20) for obtaining temperature profile data from a portion of a wellbore (12). *(See paragraph 20, page 10, lines 2-8)*. The temperature profile data is provided to a processor (22) which automatically determines whether fluids are flowing into or out of a tubing (16) located in the well based on processing of the temperature profile data. *(See paragraph 20, page 10, lines 2-3; paragraph 21, page 11, lines 2-11)*. The methodology further comprises highlighting valuable information to a user related to the flow of fluid relative to the tubing (16). *(See paragraph 22, page 11, lines 12-20)*.

b.)   Independent Claim 10

Independent claim 10 is directed to a methodology for analyzing distributed temperature data from a well. *(See paragraph 9, page 7, lines 1-15)*. The methodology comprises obtaining temperature profile data from a portion of a wellbore (12). *(See paragraph 20, page 10, lines 2-8)*. The temperature profile data is provided to a processor (22) which automatically processes

the temperature profile data. *(See paragraph 20, page 10, lines 2-3; paragraph 21, page 11, lines 2-11).* The processing of temperature profile data highlights valuable information to a user and further comprises applying a model-fitting algorithm to the data. *(See paragraph 22, page 11, lines 12-20; paragraphs 27-28, page 16, lines 11-20; paragraph 30, page 18, lines 10-20).* The processing also comprises constructing a match filter which includes incorporating modifications to the match filter to make it orthogonal to background trends. *(See paragraphs 53-57, page 34, line 2, through page 37, line 5).*

 c.) Independent Claim 22

Independent claim 22 is directed to a system (10) used to analyze distributed temperature data from a well. *(See paragraph 9, page 7, lines 1-15).* The system (10) comprises a distributed temperature sensor (20) which measures temperature profile data along a portion of a wellbore (12). *(See paragraph 20, page 10, lines 2-8).* The temperature profile data is provided to a processor (22) in real-time. *(See paragraph 23, page 13, lines 1-6).* The processor (22) is programmed to identify a particular temperature signal that corresponds to a specific downhole event having an inflow of relatively cooler fluid. The processor (22) is further able to output valuable information related to the specific downhole event. *(See paragraphs 22-23, page 11, line 12, through page 13, line 6).*

 d.) Independent Claim 31

Independent claim 31 is directed to a methodology that enables detection of certain events within a well. The methodology uses a distributed temperature sensor system (20) for obtaining data related to temperature. *(See paragraph 20, page 10, lines 2-8).* The data is obtained from a portion of a wellbore (12) over a period of time. The methodology further comprises automatically processing the data to detect specific events related to heat energy in the well. Data also is automatically processed to determine a flow rate of fluid in the well. *(See paragraphs 70-76, page 42, line 20, through page 46, line 14).* The methodology further comprises displaying the results of the processing to a user. *(See paragraphs 23-24, page 12, line 11, through page 13, line 11).*

 e.) Independent Claim 40

Independent claim 40 is directed to a methodology that enables detection of certain events within a well. The methodology comprises obtaining data over a period of time from along a

portion of a wellbore (12). *(See paragraph 20, page 10, lines 2-8).* The data is automatically processed to detect specific events related to heat energy in the well. The automatic processing comprises applying a model-fitting algorithm *(See paragraphs 27-28, page 16, lines 11-20; paragraph 30, page 18, lines 10-20)* to the data which further includes constructing a match filter and using extrema of a convolution of the filter with data to select candidate depths. *(See paragraphs 53-59, page 34, line 2, through page 38, line 10).* Constructing the match filter further comprises incorporating modifications to the filter to make it orthogonal to background trends. *(See paragraphs 53-57, page 34, line 2, through page 37, line 5).* Additionally, the methodology comprises displaying results of the processing to a user. *(See paragraphs 23-24, page 12, line 11, through page 13, line 11).*

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

a.) Whether claims 1-9, 11-14, 16-39 and 42-48 are unpatentable under 35 U.S.C. § 102(b) as anticipated by the C.K. Woodrow (SPE/IADC 67729) reference.

b.) Whether claims 10 and 40 are unpatentable under 35 U.S.C. § 103(a) as obvious over the C.K. Woodrow (SPE/IADC 67729) reference in view of the Riza reference, U.S. Patent No: 6,360,037.

c.) Whether claim 15 is unpatentable under 35 U.S.C. § 103(a) as obvious over the C.K. Woodrow (SPE/IADC 67729) reference.

d.) Whether claim 41 is unpatentable under 35 U.S.C. § 103(a) as obvious over the C.K. Woodrow (SPE/IADC 67729) reference in view of the Tubel reference, US Patent No: 6,012,015.